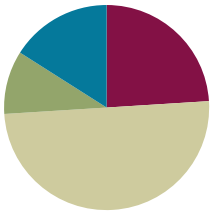
Lesson 5

Objective: Represent composition and decomposition of numbers to 5 using pictorial and numeric number bonds.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(25 minutes)
Student Debrief	(8 minutes)
Total Time	**(50 minutes)**



Fluency Practice (12 minutes)

- Counting the Say Ten Way with the Rekenrek **K.NBT.1** (4 minutes)
- Draw Lines to Make a Bond of 5 **K.OA.1** (4 minutes)
- Making 4 with Squares and Beans **K.OA.3** (4 minutes)

Counting the Say Ten Way with the Rekenrek (4 minutes)

Materials: (T) 20-bead Rekenrek

Note: This fluency activity is an extension of students' previous work with the Rekenrek and anticipates working with teen numbers.

T: We can count with the Rekenrek the same way we do our Say Ten push-ups. (Keep the screen on the right side of the Rekenrek to cover the beads that are not being counted. Slide over all of the beads on the top row.) How many do you see?

S: 10.

T: Here's 1 more. (Slide over 1 bead on the bottom row.) How many do you see?

S: Ten 1.

T: (Slide 1 more bead over on the bottom row.) How many do you see?

S: Ten 2.

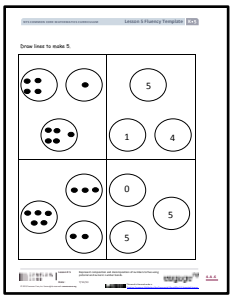
T: (Slide 1 more bead over on the bottom row.) How many do you see?

S: Ten 3.

Continue counting forward and backward with the following suggested sequence: ten 1, ten 2, ten 3, ten 2, ten 3, ten 4, ten 5, ten 4, ten 3, ten 4, ten 3, ten 2, ten 1.

Draw Lines to Make a Bond of 5 (4 minutes)

Materials: (S) 5 beans, make a bond of 5 (Fluency Template) inserted into personal white board



Note: This fluency activity reinforces the part–total relationship represented by the number bond. It helps students understand that the lines of the number bond connect the two parts with the total and that the orientation of the parts and total do not affect the numerical relationship.

Conduct the activity as outlined in Lesson 2. Have students add numerals to the first two bonds if needed to help them move from pictorial to abstract thinking.

Making 4 with Squares and Beans (4 minutes)

Materials: (S) 4 beans, paper or foam square

Note: This fluency activity is a familiar way for students to practice decompositions of 4 while reviewing geometric properties of squares (4 corners). Students take what they know about this activity and apply it to number bonds.

T: Touch and count the corners of the square.
S: 1, 2, 3, 4.
T: Touch and count your beans.
S: 1, 2, 3, 4.
T: Our job is to make 4. Use 3 beans to mark 3 of the square's corners. Keep the other one in your hand. How many beans on your square?
S: 3.
T: How many beans in your hand?
S: 1.
T: We can tell how to make 4 like this: 3 and 1 make 4. Echo me, please.
S: 3 and 1 make 4.

Have students record this on a number bond. Continue with all the number combinations, including 4 and 0.

Application Problem (5 minutes)

Materials: (S) Personal white board

Windsor the puppy had 5 juicy bones. He buried some of them in the yard and put some of them by his dish. Draw his bones. Compare your picture to your friend's. Did you make your pictures the same way? Talk to your friend about how your pictures are alike and how they are different. Make a number bond about your problem.

Note: In this problem, students work with and discuss different decompositions of 5 in preparation for today's lesson.

A NOTE ON MULTIPLE MEANS OF REPRESENTATION:

Scaffold the Application Problem for English language learners by explaining the expected outcomes at each step. Explain that when a dog buries a bone, it cannot be seen, because it is hidden. Help students draw their 5 bones with some in the dish and some not.

Concept Development (25 minutes)

Materials: (T) White board and various color markers (S) Personal white board, number bond (Lesson 1 Template 2)

Draw 4 triangles on the board. Draw a blank number bond.

T: What do you notice on the board?

S: There are 4 triangles! → There is an empty number bond.

T: I wonder if we could use these triangles to help me make a number bond. Do you remember some ways we learned to sort shapes earlier this year? Let's color 2 red and 2 blue. What would I do now?

S: We could sort them by color!

T: Could we put the total number of triangles somewhere in my number bond? In which circle should I draw the whole group of 4 triangles? (Allow time for discussion.)

S: In the place where you put the whole thing!

T: I will draw them in the whole. Now, where could I draw my set of 2 red triangles?

S: In one of the parts.

MP.1

T: And the blue ones?

S: In the other part!

T: You are right! Please draw these groups on your number bond mat.

T: You showed me how I can take my 4 triangles and make them into 2 groups of 2. 4 is the same as 2 and 2.

T: Help me write the triangle story with numbers in the number bond. (Allow students to assist in writing the numerical number bond and to copy this onto their number bond mats.) We can write what we did in a special **number sentence**: 4 = 2 + 2. (Say while writing, "4 is the same as 2 and 2.")

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Ask students working above grade level to explain (either orally or in writing) how they know which circle to draw the total number of triangles in. Ask them to explain why they should not draw the total number of triangles in one of the circles with just one path to it. If other students are confused about where to draw their triangles, ask students who understand to help.

T: Let's try another one. I'm going to make a new number bond and put another shape surprise on the board. (Draw a red circle, and create a new number bond template in a different orientation.)

T: Draw your number bond like mine. How could I use all of my shapes to make a new number bond? How could we sort them?

S: Some are triangles, and one is a circle! → We can sort them by shape.

T: What would my number bond look like?

S: You would draw a circle in one part. → Draw the triangles in the other part.

T: Good. Please draw this picture in your number bond. (Demonstrate.) So, we have 1 shape in this part and 4 in the other. How many shapes do we have in all?

S: 5.

T: Yes. 1 shape and 4 shapes make 5 shapes altogether. Please draw the whole group of shapes in your number bond.

T: Now, let's write the numbers instead to show our story. Replace the shapes with numbers! (Demonstrate.) 1 and 4 make …?

S: 5.

T: I can write it like this: 1 + 4 = 5. (Say while writing, "1 and 4 make 5.") Is there another way we could sort our shapes?

S: We could sort them by color again. → 2 are blue, and 3 are red.

T: (Guide students to help you create pictorial and numerical number bonds for the new situation, having them write the number bonds on their mats.) Are we putting the groups together or taking them apart?

S: We are putting the shapes together.

T: When we put them together, where do we put the number for our whole?

S: We put the 5 in the place where the parts come together.

T: You are right. 2 blue shapes and 3 red shapes make …?

S: 5 shapes in all!

T: Yes. 2 and 3 together make 5. We could write that like this: 2 + 3 = 5. Great job!

T: With your partner, draw more shapes, and make your own number bonds! (Allow time for drawing and discussion.) Who would like to share their number bonds with the class?

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time. Since this worksheet is single sided, ask early finishers to draw a picture of a story about tomatoes and carrots that either brings the vegetables together or separates them. Ask them to make a number bond to match.

Student Debrief (8 minutes)

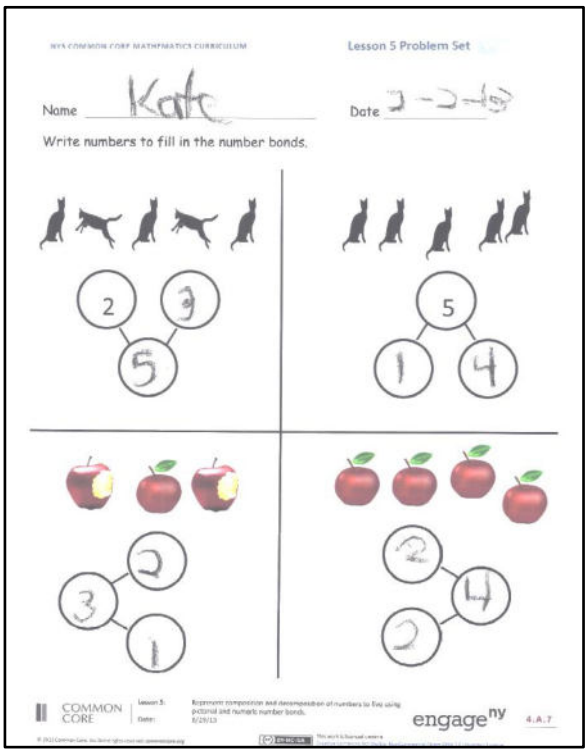
Lesson Objective: Represent composition and decomposition of numbers to 5 using pictorial and numeric number bonds.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

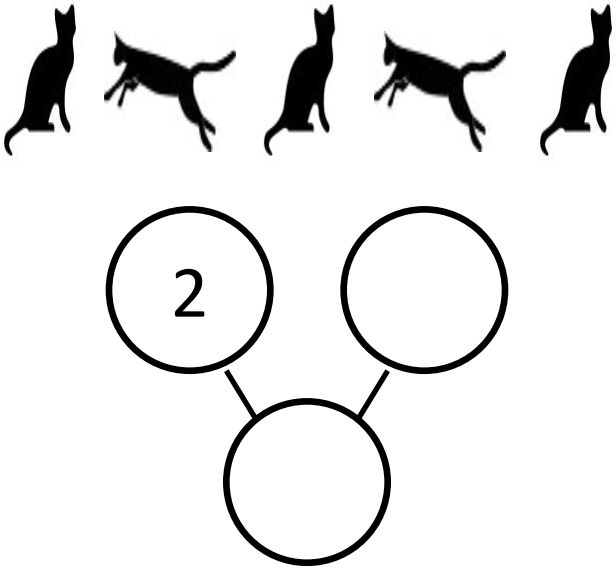
Any combination of the questions below may be used to lead the discussion.

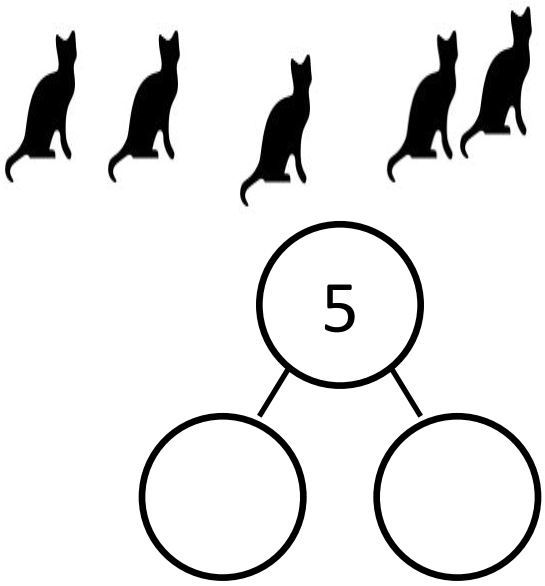
- Look at the cats in the Problem Set. How many cats are there in each problem? (5.) Are they the same or different? How?
- In what ways did we sort our shapes on the board?
- How did we know which number to write in which circle?
- Today, we put some things together. Can anyone think of something we put together? How did we use the number bond to show putting together?
- We also took things apart. What did we take apart? How did we use the number bond to show taking apart?

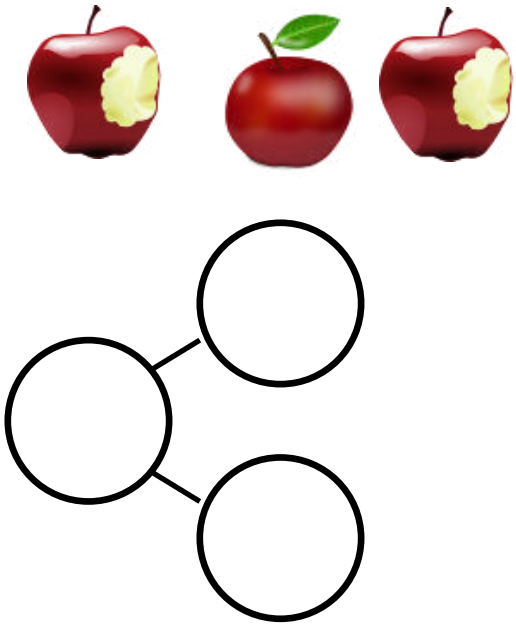


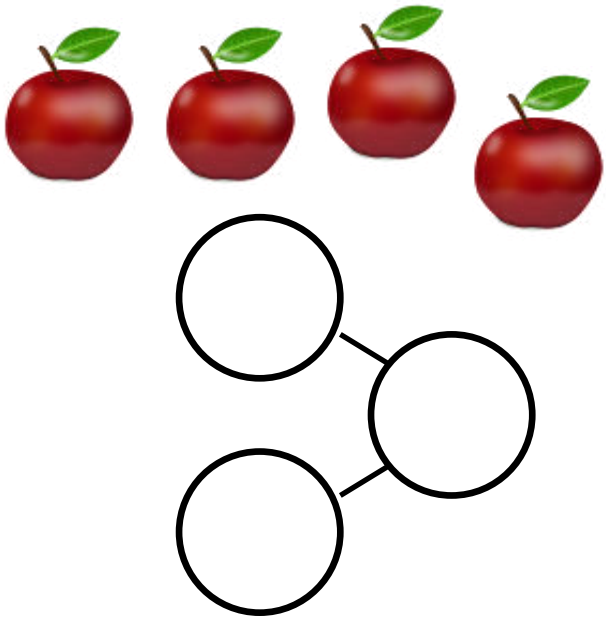
Name _____ Date _____

Write numbers to fill in the number bonds.



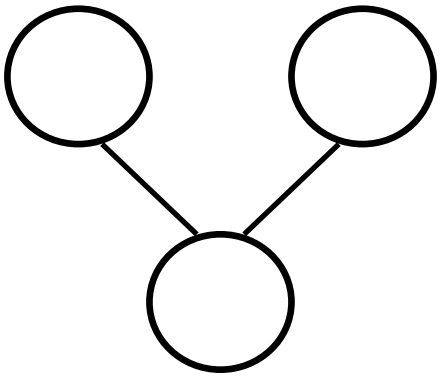






Name _____ Date _____

There are 2 pandas in a tree. 2 more are walking on the ground. How many pandas are there? Fill in the number bond and the sentence.



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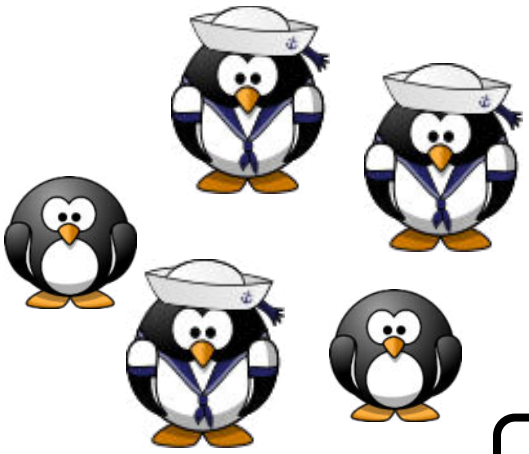
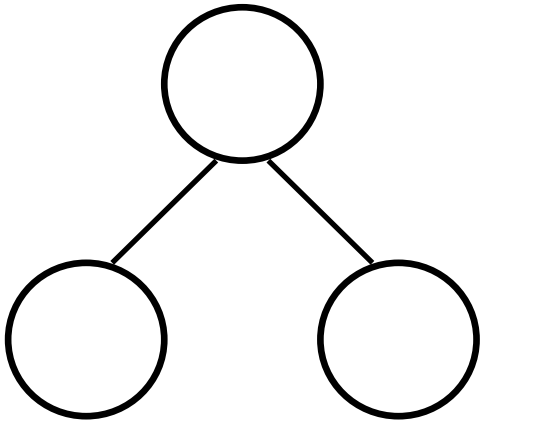
Tell a story about the penguins. Fill in the number bond and the sentence to match your story.





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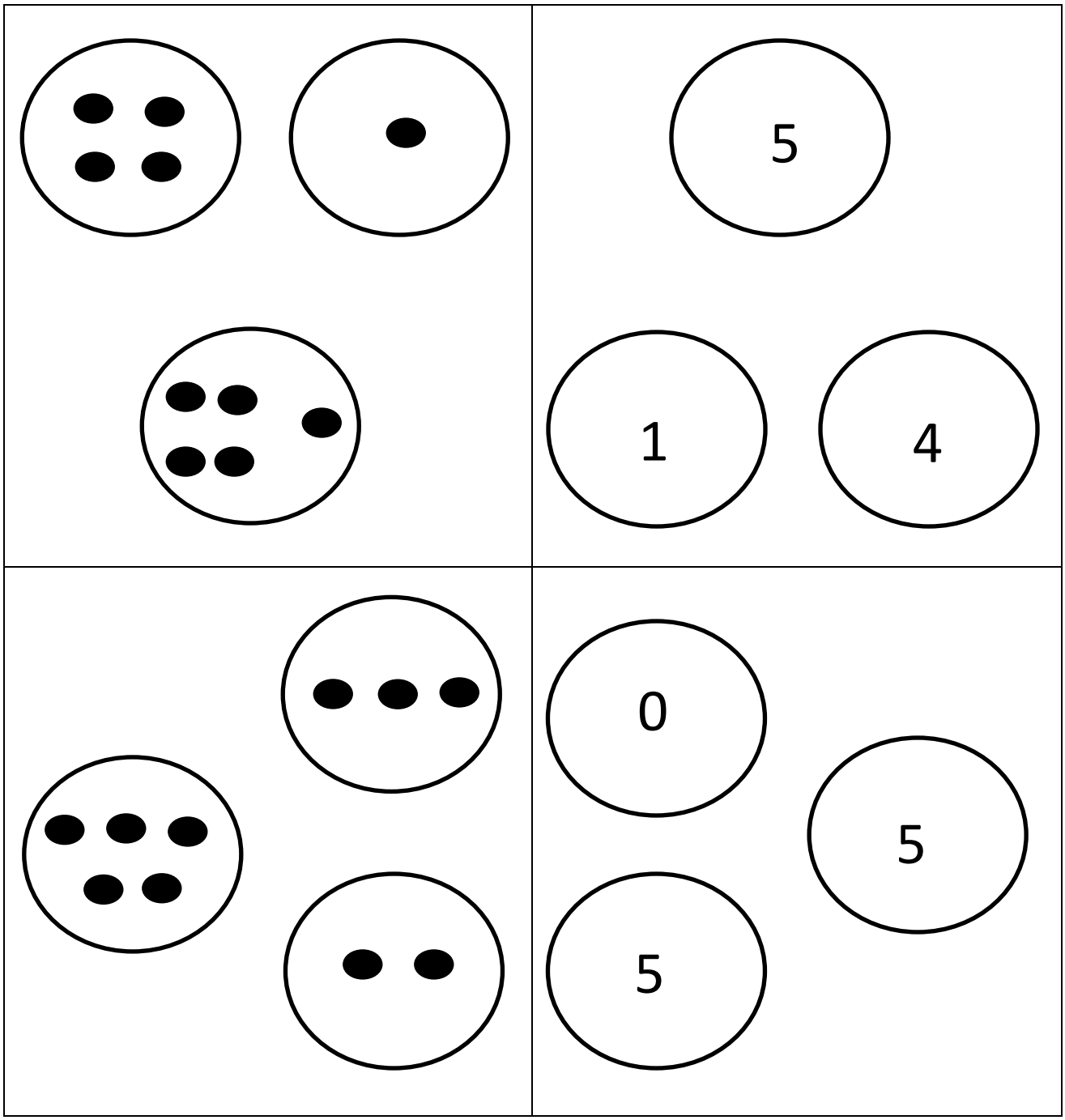
Draw lines to make a bond of 5.



make a bond of 5